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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/829,505	04/09/2001	Chung-Hsing Tzu	004728.P054	6728

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EXAMINER

VU, QUANG D

ART UNIT	PAPER NUMBER
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2811

DATE MAILED: 09/25/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/829,505

Applicant(s)

TZU ET AL.

Examiner

Quang D Vu

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on amendment filed on 06/20/03.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 29-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 29-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

2. Claims 35-37, 42 and 46-48 rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The specification (figures 4-6) does not disclose the lower surface of the molding compound is generally planar as claimed in claims 35, 42 and 48. Note all line recesses in the lower surface. How can the lower surface be generally planar with these recesses? This is a new matter rejection.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 29-48 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent No. 6,420,779 to Sharma et al.

Sharma et al. (figure 1) teach a semiconductor package, comprising:

a leadframe (120, 130, 140) having:

a die pad (120) defining opposed upper and lower surfaces; and

a plurality of leads (130, 140) disposed at least partially about the die pad (120) in spaced relation thereto, each of the lead (130, 140) defining opposed upper and lower surfaces;

a die (110) attached to the upper surface of the die pad (120) and bonding wires (170, 180) connected between the portions of the leads (130, 140) and die (110) for electrical communication; and

a molding compound (150) at least partially encapsulating the die (110) and the leads (130, 140) such that portions of the leads (130, 140) which define the lower surfaces thereof protrude from a lower surface of the molding compound (150).

It is inherent that the leads (130, 140) include the bonding pads because leads are conventionally connected through bonding pads to the structures it interconnects between the wires and the external circuit.

Regarding claim 30, Sharma et al. teach the die (110) is attached to the upper surface of the die pad (120) through the use of an adhesive material (160).

Regarding claim 31, Sharma et al. teach the adhesive material (160) includes epoxy (column 3, lines 48-49).

Regarding claim 32, Sharma et al. apply to this claim as discussed regarding claim 29 above.

Sharma et al. teach the die (110) is electrically connected to the portions of the leads (130, 140) via bonding wires (170, 180), which are encapsulated by the molding compound (150).

Regarding claim 33, Sharma et al. teach the molding compound (150) comprises mold resin (column 4, lines 51-52).

Regarding claim 34, Sharma et al. teach a portion of the die pad (120) defining the lower surface thereof protrudes from the lower surface of the molding compound (150).

Regarding claim 35, Sharma et al. apply to this claim as discussed regarding claim 29 above.

Sharma et al. teach the lower surface of the molding compound (150) is generally planar; the lower surface of each of the leads (130, 140) is generally planar; and the lower surfaces of the leads (130, 140) and the lower surface of the molding compound (150) extend along respective ones of a spaced, generally parallel pair of planes.

Regarding claim 36, Sharma et al. apply to this claim as discussed regarding claim 34 above.

Regarding claim 37, Sharma et al. apply to this claim as discussed regarding claims 29, 35 and 36 above.

Sharma et al. teach the lower surface of the die pad (120) is generally planar and extends in generally co-planar relation to the lower surfaces of the leads (130, 140).

Regarding claim 38, Sharma et al. apply to this claim as discussed regarding claim 29.

Sharma et al. teach the upper surface of the die pad (120) is generally planar; and the upper surfaces of the leads (130, 140) are generally planar and extend in generally co-planar relation to the upper surface of the die pad (120).

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Regarding claim 39, Sharma et al. apply to this claim as discussed regarding claim 29 above.

Regarding claim 40, Sharma et al. teach the leadframe (120, 130, 140) comprises a die pad (120) defining opposed upper and lower surfaces, the die (110) being attached to the upper surface of the die pad (120).

Regarding claim 41, Sharma et al. teach the die (110) is attached to the upper surface of the die pad (120) through the use of an adhesive material (160).

Regarding claim 42, Sharma et al. apply to this claim as discussed regarding claim 39 above.

Sharma et al. teach the lower surface of the molding compound (150) is generally planar; the lower surface of each of the leads (130, 140) is generally planar; the lower surface of the die pad (120) is generally planar; and the lower surfaces of the leads (130, 140) and the die pad (120) and the lower surface of the molding compound (150) extend along respective ones of a spaced, generally parallel pair of planes.

Regarding claim 43, Sharma et al. apply to this claim as discussed regarding claim 39 above.

Sharma et al. teach the die (110) is electrically connected to the portions of the leads (130, 140) via bonding wires (170, 180), which are encapsulated by the molding compound (150).

Regarding claim 44, Sharma et al. (figure 1) teach a semiconductor package, comprising:
a leadframe (120, 130, 140) having:

a die pad (120) defining opposed upper and lower surfaces; and

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at least one lead (130 or 140) disposed in spaced relation to the die pad (120) and defining opposed upper and lower surfaces;

a die (110) attached to the upper surface of the die pad (120) and bonding wires (170, 180) connected between the portion of the lead (130 or 140) and die (110) for electrical communication.

a molding compound (150) at least partially encapsulating the die (110) and the lead (130, 140) such that portion of the lead (130, 140) which define the lower surfaces thereof protrude from a lower surface of the molding compound (150).

It is inherent that the lead (130 or 140) comprising the bonding pads because it provides connection between the wires and the external circuit.

Regarding claim 45, Sharma et al. apply to this claim as discussed regarding claim 44 above.

Sharma et al. teach the die (110) is electrically connected to the lead (130 or 140) via bonding wires (170, 180), which are encapsulated by the molding compound (150).

Regarding claim 46, Sharma et al. apply to this claim as discussed regarding claim 44 above.

Sharma et al. teach the lower surface of the molding compound (150) is generally planar; the lower surface of the lead (130 or 140) is generally planar; and the lower surface of the lead (130 or 140) and the lower surface of the molding compound (150) extend along respective ones of a spaced, generally parallel pair of planes.

Regarding claim 47, Sharma et al. teach a portion of the die pad (120) defining the lower surface thereof protrudes from the lower surface of the molding compound (150).

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Regarding claim 48, Sharma et al. apply to this claim as discussed regarding claims 44, 46 and 47.

Sharma et al. teach the lower surface of the die pad (120) is generally planar and extends in generally co-planar relation to the lower surface of the lead (130 or 140).

Response to Arguments

Applicant's arguments filed 06/20/03 have been fully considered but they are not persuasive.

Applicant's arguments regarding the newly submitted claims 29-48 are not persuasive because of reasons stated in rejections above.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

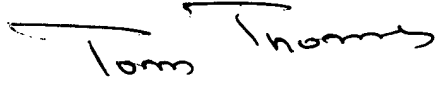
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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quang D Vu whose telephone number is 703-305-3826. The examiner can normally be reached on Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tom Thomas can be reached on 703-308-2772. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9306 for regular communications and 703-872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

qv
August 29, 2003


TOM THOMAS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800